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of which serves for paste; but the mucilaginous substance of the *mahoá* root is sometimes substituted for it: at the same time others are busy scraping off the soft bark of the *coca* tree and the *tooi-tooi* tree, either of which when wrung out, without water, yields a reddish brown juice, to be used as a die. The *cobéchi*, or stamp is formed of the dried leaves of the *páoongo* sewed together so as to be of a sufficient size, and afterwards embroidered, according to various devices, with the wiry fibre of the cocoa-nut husk*; they are generally about two feet long, and a foot and a half broad: they are tied on to the convex side of half cylinders of wood, usually about six or eight feet long, to admit two or three similar operations to go on at the same time. The stamp being thus fixed, with the embroidered side uppermost, a piece of the prepared bark† is laid on it, and smeared over with a folded piece of *gnatoo* dipped in one of the reddish brown liquids before mentioned, so that the whole surface of the prepared bark becomes stained, but particularly those parts raised by the design in the stamp: another piece of

* Making these *cobechis* is another employment of the women, and mostly women of rank.

† The edges of the beaten bark, which is generally hard, knotty, and ragged, are cut off straight.

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287 shore, and the finishing operation of *toogi hea* commences, or staining it in certain places with
531 the juice of the *hea*, which constitutes a bril-
[386] liant red varnish; this is done in straight lines along those places where the edges of the printed portions join each other, and serves to conceal the little irregularities there; also in sundry other places, in the form of round spots about an inch and a quarter in diameter: after this the *gnatoo* is exposed one night to the dew, and the next day being dried in the sun, it is packed up in bales to be used when required. When *gnatoo* is not printed or stained, it is called *tapa*.

287 They make also an inferior kind of *gnatoo* of
[764] the bark of young bread-fruit trees, which, however, is coarse, and seldom worn, but is chiefly used for various purposes at funerals.

[462] The whole of these operations are performed
[565] by women: the embroidering of the *cobechis*,
[413] or stamps, is always done by women of rank.
[391] In respect to mat and basket-making, they have mats of various kinds, made of strips of
285 leaves or bark selected, dried, and otherwise
[462] prepared; all of which, except one or two of a coarser kind, are fabricated by women. The following are the names and qualities of them.

[291] *Gnafi gnafi*, mats to wear, of a finer quality, made of the leaves of the *fa* or *paoongo*, that

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rains hard in the day they are guided by the swell of the sea & wind. As another proof of the distance or at least of the stay they make at some places, they always carry a considerable quantity of Cloath, matts &c and provisions, the last of which they dress on a sort of hearth made of sand & stones plac'd near the fore part of the stage. The number of people, amongst which are always several women, being at least four times more than is sufficient to Navigate the Boat implys some other business, though perhaps it may be for the relief of each other: for here as in all other cases there seems to be such a perfect unity amongst them that when they are oblig'd to paddle from a calm or any other accident, the whole crew and rowers themselves join in songs and a musical recitative to give an agreement to their strokes and ease the irksomness of that unvaried labour.

The only tools they have to make these boats are Hatchets, or rather thick Adzes, of the smooth black stone mentioned before (but some want the projecting part behind), an augur made of a sharks tooth fix'd on a small handle, and a rasp of a rough fishes skin laid over & fastend on a flat piece of wood thinner on one side with a handle. The vast labour they must be at and the time that is spent with their [boats], being perhaps their most perfect mechanical production, are probably the reasons for being so carefull of them, for they are built and preserv'd under long shades of two sides which reach to the ground & incline towards the top, so that the ends which are both open represent a half ellipsis on its base; but when that cannot be done they always cover the deck'd part with Cocoa leaves after they are haul'd on shore to prevent the sun hurting them.

The same tools are all they have for other works, if we except different shells which they use as knives, but there are few that require these unless it is some of their weapons, the other articles being chiefly their fishing materials, cordage and a few others. The Cordage is made from the fibres of the Cocoa nut husk, which though not more than nine or ten inches long they plait about the size of a quill or less to any length they please, & roll it up in balls from which the larger rop[e]s are made by many of these being tied together and twisted. The lines they fish with are made from the [1] and are as strong and even as the best cord we make, resembling it almost in every respect. Their other things for that purpose are large and small hooks, made with a pretty straight back and a point fix'd on the inside near the end. The last are made entirely of pearl shell, but the first only coverd on the back with it, & the points of both commonly of tortoise shell, those of the small being plain the others

[1] Tou, not the *Melochia* but *Pipturus argenteus*, widely used for this purpose in the Pacific.

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226 barb'd. With the large ones they catch Bonneto & Albicore by put-
[321] ting them to a large Bamboo rod twelve or fourteen feet long, with a
391 line as long, which rests in a notch of a piece of wood fix'd in the stern
227 of the Canoe for that purpose, and is dragg'd on the surface as she
824 rows along without any other bait than a tuft of flaxy stuff[1] near the point. They have also great numbers of pretty small seines, some of
462 which are of a very delicate texture, that they use to catch fish with
502 in the holes on the reefs when the tide ebbs, besides barb'd gigs which they strike some with, each of which are so numerous that shows much of their time is employ'd in that business; & it is the only thing that can be reckon'd laborius where we find the women are sometimes engag'd, and where they handle the paddle as dexterously as the men.

534 The other manual employments consist chiefly in making musical
463 reeds, flutes, warlike weapons and stools or rather pillows[2] to sleep on. The reeds have eight, nine or ten pieces plac'd parallel to each other but do not observe that simple progression in length as the ancient ,[3] having the longest sometimes in the middle &c and several of the same length, so that I have seen none with more than
533 six notes. They seem incapable of playing any regular music on these, at least not distinguishable by our ears, though it seems very strange they should invent an instrument whose powers they must certainly be acquainted with and not be able to apply it to use, at least not generally. The flutes are a joint of Bamboo close at both ends, with a hole near each and four others, two of which & one of the first only are us'd in playing.[4] They apply the Thumb of the left hand to close the nostril of that side and blow into the hole at one end with the other. The middle finger of the left hand is applied to the first hole on that side and the fore finger of the right to the lowest of the same side. In this manner though the notes are only three, they produce a pleasing yet simple music which they vary much more than the notes would seem to admit of. Whether the other holes have any use in this case I am not certain, but one of their very evident intentions is to serve as a double flute, for the other two holes & that at the end are placd exactly in the same order as the others so that they play in-
533 differently with either end. Their being accustom'd to a music which
177 consists of such few notes is perhaps the reason why they do not seem to relish any of ours, which is so complex, but they seem very sensible of any that is more deficient than their own, as they us'd to be well

[1] Teased out hibiscus bark would be so used.
[2] *kali*, pillows.
[3] Probably 'syrinx' was the word he was in search of. The Tongan name was *mimiha*.
[4] The *fangufangu*.

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283 Their Cordage is another considerable article which they make of the rind of the Cocoa nut. Some of this they have of a thickness of a [226] 4 or 5 inch rope, which is used in the rigging of their Canoes; fishing [284] & other small Lines they make exceeding neat and strong from the Fibres of a Plant[1] & of these Lines they make excellent fishing Nets.

285 These people excell in making baskets, of which they have 3 or four different Sorts & sizes all made of the rind of the Cocoa nut; one kind is made very strong which is that in most common use, another which is more for Shew are made exceedingly neat & beautiful with white beads & sometimes red feathers worked in them, these we esteemed as some of the greatest Curiosities among them; a third sort are constructed in an odd manner & have a very antique Appearance which made us compare them to Cathedrals[2]—they have other Sorts 391 still but those above mentioned are the principal. Their other Manufactures consist of their weapons of war which have been 412 already mentioned, their fishing Tackle of various Sorts, much like those of Otaheite, their working Tools which consists of an Adz 301 made of blue Stone, a Shark's Tooth fastened to the end of a Stick for 306 a graving Tool, and Files and their Jewellery, such as Necklaces of 237 various Sorts, some made of small shells of various colours & prettily disposed, others of the Legs of fowls, which however odd they may Sound, these people contrive to make into ornaments for their women's Necks and are no bad ones.

501 Their Canoes are of two Sorts, double & single and of a very curious construction & well finished & must cost them much Labour, they consist of several pieces of plank very ingeniously adapted to each other & sewed together on the inside of the Canoe; the single ones are in general large enough to hold six people, have an outrigger to them & are covered over with a deck at the Head and Stern under [531] which they stow the different articles they carry in them. On these decks they fasten 10 or a dozen white Shells as ornaments & at the stern there is a Support for a fishing rod which they generally carry along with them. The double or sailing Canoes are built large & strong with a Stage, on which a Hut is built. Some of them are capable of carrying 80 or 100 Men & can keep the Sea a long time [285] in these Latitudes. Their Sails are made of strong Matting & have [531] generally the Image of a Cock upon them.

Their musical Instruments consist of a Flute, a small instrument 534 called by the Natives Meemeeah,[3] and Drums. The Flute is made [824]

[1] Tou, *Pipturus argenteus*; or Fau, *Hibiscus tiliaceus*.

[2] It is hard to guess what Samwell means by this—perhaps the top edge of some baskets, like an immense saw-tooth.

[3] mimiha, Pan-pipe.